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Ultrasound detection of residual cervical cancer after conization, in a retrospective monocentric analysis: The URECA study

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Objective

To assess the accuracy of ultrasound in identifying residual cervical tumor following conization, using histology as the gold standard

Methods

This retrospective, single-center study included patients with early-stage cervical cancer (FIGO IA1–IB1 and early IB2) who underwent conization followed by secondary surgical treatment (re-conization, hysterectomy, or trachelectomy). Patients with locally advanced disease were excluded.

All patients underwent transvaginal/transrectal ultrasound after conization and before definitive surgery between January 2015 and May 2025. Ultrasound findings were classified as absent residual tumor, present residual tumor, or uncertain (residual disease vs post-conization artifacts). For statistical analysis, uncertain cases were conservatively considered positive for residual disease. Ultrasound results were compared with the final histopathology.

Results

A total of 166 patients were included (mean age 44.4 ± 9.2 years). Residual tumor was found at final histology in 75 patients (45.2%), while 91 (54.8%) had no residual disease.

The median tumor diameter at conization was 9.8 ± 6.2 mm, and the mean interval between conization and ultrasoundwas 61.2 ± 45.5 days. Ultrasound correctly identified residual tumor in 40/75 cases (53.3%), while false-positive findings occurred in 16/91 patients (17.6%). Uncertain ultrasound findings were reported in 43 cases (25.9%), of which 16 (37.2%) had residual disease at histology. Residual tumors were predominantly hypoechoic with moderate (45.0%) or rich (35.0%) vascularization on color Doppler. Ultrasound demonstrated a sensitivity of 74.7% (95% CI, 64.8–84.5), specificity of 52.7% (95% CI, 42.5–63.0), and overall accuracy of 62.7% (95% CI, 53.1–72.2).

Conclusions

In this study, ultrasound showed suboptimal performance in detecting residual tumor after conization for cervical cancer, indicating that optimal timing and accurate assessment of residual disease remain clinically relevant challenges.

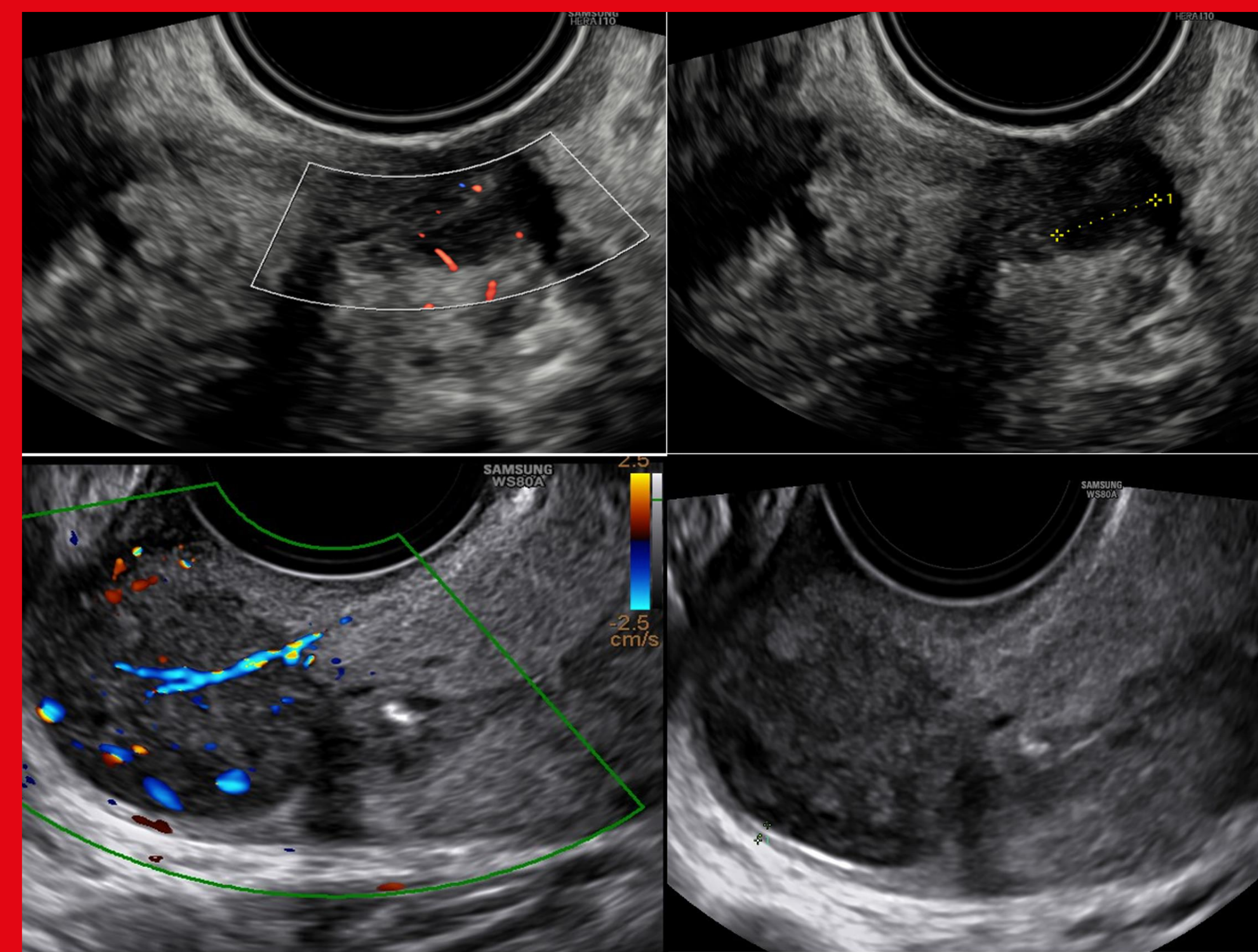


Figure 1. Grey-scale and color Doppler images of residual cervical cancers after conization

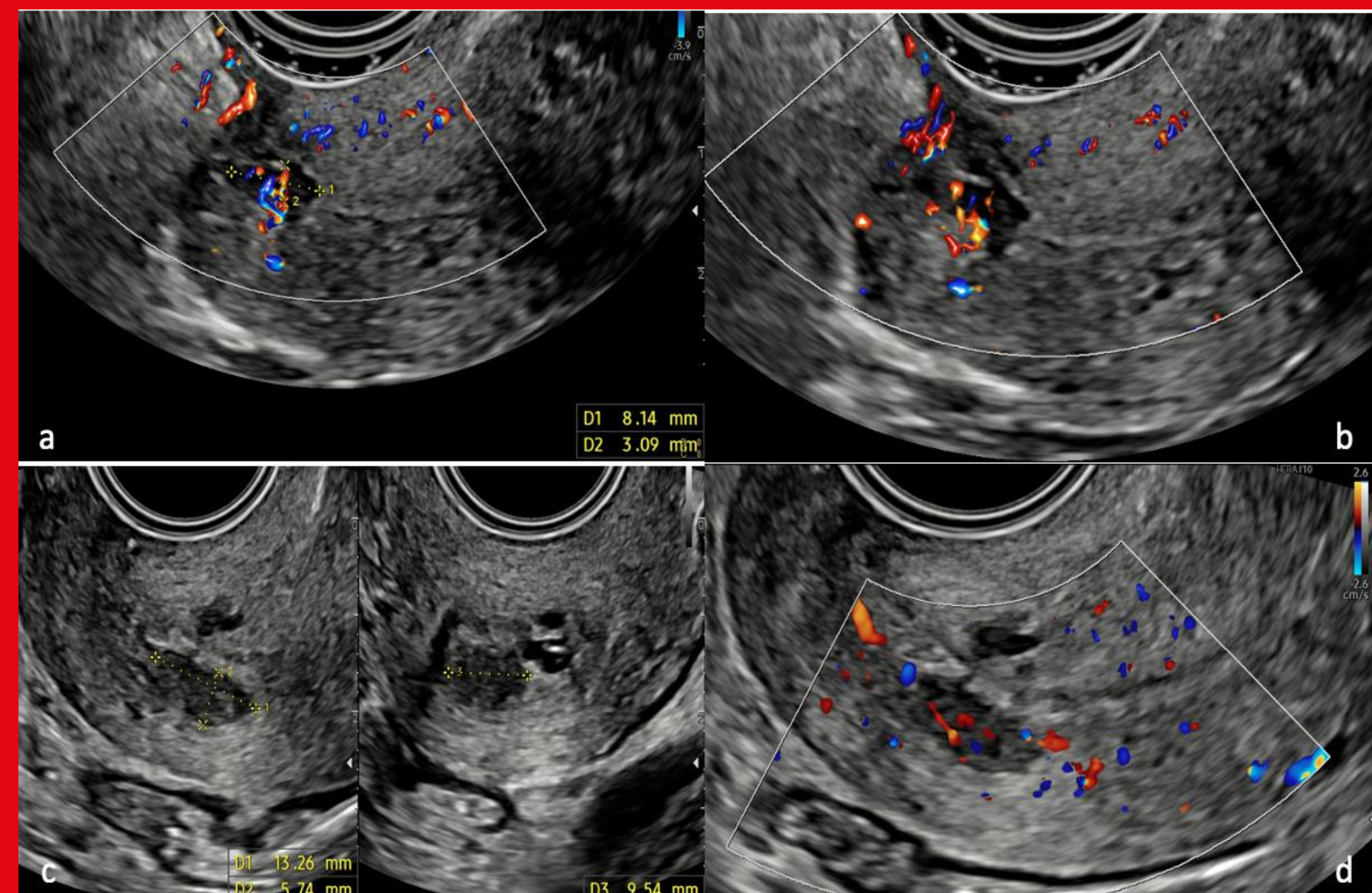


Figure 2. Grey-scale and color Doppler images of false-positive residual cervical tumors.